60,130-1123; 01MRA0276

IN THE SPECIFICATION

Please replace paragraph [1] with the following paragraph:

This invention relates to a retainer clip for a brake shoe that helps to maintain proper shoe geometry. Specifically, ~~retaining~~ retainer clips are mounted to each brake shoe to interact with ~~the~~ anchor pins for maintaining shoe contact, proper shoe orientation, and to prevent shoe drag when ~~the brake assembly is~~ brakes are not applied.

Please replace paragraph [2] with the following paragraph:

Drum brakes are widely used in vehicle braking systems. In a typical drum brake, two arcuate brake shoe assemblies are located inside a rotating cylindrical brake drum. Each brake shoe assembly includes a backing plate that carries brake lining friction material. A brake actuator moves the brake shoe assemblies toward the rotating cylindrical brake drum such that the brake lining friction material contacts the inner surfaces of the rotating cylindrical brake drum, thus retarding the rotation of the rotating cylindrical brake drum.

Please replace paragraph [3] with the following paragraph:

The brake shoe assemblies are mounted to a central plate or brake spider. At one end each brake shoe assembly is pivotally supported on an anchor pin. At the opposite end of each brake shoe assembly, the brake actuator (typically a cam) applies an actuation force against the ~~shoes~~ brake shoe assembly causing the ~~shoes~~ brake shoe assemblies to pivot about axes define by the anchor pins. The brake actuator causes the brake ~~shoes~~ shoe assemblies to pivot away from each other toward the rotating cylindrical brake drum. Return springs are used to return the

brake ~~shoes~~ shoe assemblies after each brake actuation. The drum brake ~~assembly~~ also includes a pair of retainer springs for each brake shoe assembly mounted on ~~the~~ an anchor pin end. The retainer springs maintain the shoe contact and orientation with the anchor pin and prevent the ~~shoe~~ brake shoe assemblies from dragging when the drum brake is not applied.

Please replace paragraph [5] with the following paragraph:

Further, the ~~retaining~~ retainer springs are an extension spring type that is designed such that in the installed condition the retainer spring is in a slight extension that results in a sufficient load to retain the weight of the brake shoe assembly relative to the anchor pin. The retainer spring includes a collection of closed coils with either hooks formed on ~~the~~ ends of the coils or hook details attached to the ends of the coils.

Please replace paragraph [6] with the following paragraph:

There are several disadvantages to using an extension spring design. Coil clashing and stress concentrations can lead to early failure. Coil clashing is caused by the closed coil design where coils collide as a result of normal road vibration, which can result in fatigue failure. Another disadvantage is caused by the spring manufacturing process. This process typically includes coiling spring wire over a mandrel, which introduces a tool mark on the retainer spring. The small diameter of the retainer spring and the closed coil design do not permit process enhancements, such as shot peening, resulting in a stress concentration in the already highly stressed inner coil area. Also, crimping hooks onto the ends of the retainer spring introduces additional tool marks that result in stress concentrations.

Please replace paragraph [7] with the following paragraph:

Thus, it is desirable to have a brake retaining mechanism that does not require extension springs. The brake retaining mechanism should be robust and be able to be used in multiple brake ~~show~~ shoe configurations in addition to overcoming the above referenced deficiencies with prior art systems.

Please replace paragraph [8] with the following paragraph:

The subject invention includes a ~~retaining~~ retainer clip that is used to maintain proper shoe contact and orientation for a cam actuated brake assembly. The ~~retaining~~ retainer clip eliminates the need for retaining springs currently used in the brake assembly to maintain proper shoe geometry. The ~~retaining~~ retainer clip is mounted to a brake shoe and cooperates with a brake shoe anchor pin to consistently achieve the correct orientation.

Please replace paragraph [10] with the following paragraph:

In the preferred embodiment, the ~~retaining~~ retainer clip is mounted to the backing plate of the brake shoe. The ~~retaining~~ retainer clip includes a base plate with a pair of transversely extending legs that support opposite ends of the anchor pin. The base plate preferably includes a resilient tab portion that grips a portion of the backing plate. The anchor pin includes a cylindrical body having a pair of pin ends of smaller diameter than the cylindrical body extending outwardly from opposing sides of the cylindrical body. The transversely extending legs of the ~~retaining~~

retainer clip preferably have hooked ends for engaging the pin ends. The hooked ends cooperate with the pin ends to maintain proper shoe geometry.

Please replace paragraph [11] with the following paragraph:

The subject invention provides a brake shoe ~~retaining~~ retainer clip that eliminates the need for retaining springs. The ~~retaining~~ retainer clip provides a more robust design and has increased fatigue life over prior art systems. These and other features of the present invention can be best understood from the following specification and drawings, the following of which is a brief description.

Please replace paragraph [12] with the following paragraph:

Figure 1 is a schematic representation of a cam brake assembly ~~incorporation~~ incorporating the subject invention.

Please replace paragraph [17] with the following paragraph:

Figure 1 is a side view of a drum brake system 10. The drum brake system 10 includes a cylindrical brake drum 12, a first brake shoe assembly generally shown at 14, a second brake shoe assembly generally shown at 16, and an actuator 18. The general operation of the drum brake ~~drum assembly~~ system 10 is known. The first and second brake shoe assemblies 14 and 16 are preferably identical such that a description of the first brake shoe assembly 14 or its components is also applicable to the second brake shoe assembly 16. The actuator 18, shown schematically in Figure 1,

is an s-cam mechanism that is rotated during a brake actuation causing the brake shoe assemblies 14, 16 to engage the cylindrical brake drum 12.

Please replace paragraph [18] with the following paragraph:

The cylindrical brake drum 12, which rotates about an axis of rotation 20, has an inner surface 22 and an outer surface 24. The first and second brake shoe assemblies 14 and 16, located adjacent to the inner surface 22 of the cylindrical brake drum 12, include a brake lining 26 having a predetermined thickness. The brake linings 26 are comprised of a known friction material attached to a backing plate 28. Each brake lining 26 presents a wear surface 32, which contacts the inner surface 22 of the ~~rotating~~ cylindrical brake drum 12 and wears further and further away each time the actuator 18 moves the first and second brake shoe assemblies 14 and 16 against the cylindrical brake drum 12.

Please replace paragraph [19] with the following paragraph:

Each brake shoe assembly 14, 16 is pivotally mounted at one end 34 to a brake spider 36 with an anchor pin 38. The ~~anchor pin~~ ends 34 of the brake shoe assemblies 14, 16 are opposite from actuation ends 40 of the brake shoe assemblies 14, 16. The anchor pin 38 for the first brake shoe assembly 14 defines a first pivot axis 42 and the anchor pin 38 for the second brake shoe assembly 16 defines a second pivot axis 44. When the brakes are applied, the actuator 18 pivots the brake shoe assemblies 14, 16 about the first 42 and second 44 pivot axes, respectively.

Please replace paragraph [20] with the following paragraph:

A prior art cam brake assembly is shown in Figure 2. This cam brake assembly includes a return spring 46 that returns the brake shoe assemblies 14, 16 to their original position after each brake actuation. The cam brake assembly also includes a pair of retainer springs 48 (only one set is shown) for each brake shoe assembly 14, 16 mounted on the anchor pin end. The retainer springs 48 maintain the shoe contact and orientation with the anchor pin 38 and prevent the brake shoe assemblies 14, 16 from dragging when the brake is not applied.

Please replace paragraph [21] with the following paragraph:

These ~~retaining~~ retainer springs 48 are extension springs that are designed such that in the installed condition the extension spring is in a slight extension that results in a sufficient load to retain the weight of the brake shoe assembly relative to the anchor pin 38. The use of this type of extension spring is disadvantageous and can lead to early failure. Coil clashing caused by normal road vibration can result in early fatigue failure. The spring manufacturing process can introduce a tool marks on the extension spring resulting stress concentrations, which can lead to premature failure.

Please replace paragraph [22] with the following paragraph:

Thus, the subject invention includes a retainer clip 50, shown in Figure 3, which eliminates the need for ~~retaining~~ retainer springs 48. The ~~retaining~~ retainer clip 50 preferably includes a base portion 52 with a pair of transversely extending legs 54 positioned on opposite sides of the base portion 52. Each transversely extending leg 54 preferably has a hooked end 56

that engages the anchor pin 38. It should be understood that there is one ~~retaining~~ retainer clip 50 for each brake shoe assembly 14, 16. Thus, the ~~retaining~~ retainer clip 50 shown in Figure 3 is the same for each brake shoe assembly 14, 16.

Please replace paragraph [23] with the following paragraph:

The anchor pin 38 includes a cylindrical body 58 and a pair of pin ends 60 positioned on opposite sides of the cylindrical body 58 to define the first pivot axis 42. The pin ends 60 have a significantly smaller diameter than the cylindrical body 58. The hooked ends 56 of the retainer clip 50 engage the pin ends 60 to maintain the proper shoe geometry.

Please replace paragraph [24] with the following paragraph:

The retainer clip 50 includes a connector portion that can be attached to any portion of the brake shoe assembly 14 with any known attachment method, however, in the preferred embodiment the retainer clip 50 is mounted to the backing plate 28 with a resilient tab 62. The resilient tab 62 includes at least one grip 64 to engage the backing plate 28. Preferably the grip 64 is a pointed tooth member that clips onto the backing plate 28 such that the resilient tab 62 is on one side of the backing plate 28 with the remaining portions of the base portion 52 being positioned on the opposite side of the backing plate 28.

Please replace paragraph [25] with the following paragraph:

The retainer clip 50 can be attached to the backing plate 28, as shown in Figure 3, or can be attached to another portion of the brake shoe assembly 14, as shown in Figure 4. Each brake

shoe assembly 14, 16 includes a pair of transversely extending webbed flanges 70 that extend inwardly toward the center of the brake assembly. The transversely extending webbed flanges 70 define an engagement surface 72 that receives a portion of the cylindrical body 58 of the anchor pin [28] 38. In the alternate embodiment of Figure 4, the retainer clip 50 is shown attached to the transversely extending webbed flanges 70. The retainer clip 50 can be attached to one or both of the transversely extending webbed flanges 70.

Please replace paragraph [26] with the following paragraph:

When the ~~cam~~ actuator 18 is applied, the brake shoe assemblies 14, 16, the retainer clips 50, and the anchor pins 38 pivot as a unit about their respective pivot axes 42, 44. The return spring 46 is used to return the brake shoe assemblies 14, 16 to their original position and the ~~retaining~~ retainer clips 50 cooperate with the anchor pins 38 to maintain proper shoe contact and orientation.

Please replace paragraph [27] with the following paragraph:

The subject invention provides a brake shoe ~~retaining~~ retainer clip 50 that eliminates the need for ~~retaining~~ retainer springs 48. The ~~retaining~~ retainer clip 50 provides a more robust design and has increased fatigue life over prior art systems.